DOCUMENT RESUME

ED 308 936 PS 018 107

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TITLE Children's Self-Assessment of Performance and Task-Related Help Seeking.
SPONS AGENCY Foundation for Child Development, New York, N.Y.; National Science Foundation, Washington, D.C.
PUB DATE 17 Jul 89
GRANT NSF-R-11-8613889
NOTE 28p.; An earlier version of this paper was presented at the Biennial Meeting of the Society for Research in Child Development (Kansas City, MO, April 27-30, 1989).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Age Differences; Elementary Education; *Elementary School Students; Grade 3; Grade 5; *Help Seeking; *Performance; *Self Evaluation (Individuals); Sex Differences; *Student Motivation; *Verbal Ability

ABSTRACT

Two experiments investigated the role of children's assessments of their performance on their decisions to seek help and their preferences for different types of assistance. Blocked into low and high verbal skill groups, participants in study 1 were 84 middle-class third- and fifth-grade elementary school students. Subjects performed a multi-trial verbal task in which they were required to indicate their confidence in the correctness of their tentative solution and subsequently were given the opportunity to seek help before providing a final solution on each trial. The second experiment involved 39 subjects and differed from the first in that subjects were provided with a common motivation for seeking help. Findings indicated that subjects' confidence in the correctness of their solution influenced both the frequency and type of help sought. High task-related skill was associated with the discriminating use of help-seeking as an achievement strategy, especially among boys. Both the frequency and type of help sought varied with self-assessments for older children, and varied more than was the case among younger children. Findings are discussed in terms of grade and sex differences in the use of internally based cues for performance evaluation. The importance of accounting for the interplay of children's age and task-specific skill with achievement-related goals is stressed. (RH)

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17 July 1989

Children's Self-Assessment of Performance and Task-Related Help Seeking

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Abstract

The present research examined the role of self-assessment of performance on children's use of help-seeking as an achievement strategy. In two experiments, third- and fifth-grade children were blocked into low and high verbal skill groups. Children performed a multi-trial verbal task in which they were required to indicate their confidence in the correctness of their tentative solution and then were given the opportunity to seek help before providing a final solution on each trial. The second experiment differed from the first in that subjects were provided with a common motivation for seeking help. Subjects' confidence in the correctness of their solution was found to influence both the frequency and type of help sought. High task-related skill was associated with the discriminating use of help seeking as an achievement strategy, especially among boys. Also, both the frequency and type of help sought varied with self-assessments for older children more than for younger children. Findings are discussed in terms of grade and sex differences in the use of internally based cues for performance evaluation. The importance of accounting for the interplay of children's age and task specific skill with achievement-related goals is stressed.

Children's Self-Assessment of Performance and Task-Related Help Seeking

For the most part, children's requests for and utilization of help from others have been treated by researchers simply as dependency behaviors (e.g., Sears, Maccoby, & Levin, 1957; Yando, Seitz, & Zigler, 1979), and as such at odds with the development of mastery and independence (e.g., Winterbottom, 1958). More recent conceptualizations of help-seeking behavior (e.g., Ames, 1983; Nelson-Le Gall, 1981), however, have pointed out the difficulties that arise in ignoring the adaptive, instrumental functions of help-seeking behaviors in problem-solving situations. Children are frequently novices at many of the tasks with which they are confronted, and may not benefit as much as more skilled learners from their sustained individual efforts. Children may often need help such as information and input from others to attain their goals or to perform successfully many of the tasks imposed by themselves or others. It is desirable under such circumstances that young and unskilled learners be prepared to take advantage of opportunities to seek help from a more expert learner when they encounter difficulties in solving problems.

Determination of the need for help could be made by the individual or by others. A lack of progress after diligent attempts to solve a problem might indicate to children, or to someone else concerned with their performance, that help is necessary. An unsuccessful attempt or incorrect answer might also provide grounds for a child or others to determine that seeking help is a necessary and appropriate action for the child to take (Nelson-Le Gall & Scott-Jones, 1985). In many previous studies, the determination of necessity has been made based on parents' or teachers' judgments of the child's ability to perform a task successfully on his or her own (e.g., Hartup, 1969; Jakubczak & Walters, 1969). Yet, when conceptualizing help-seeking as an intentional act that can be instrumental to learning and achievement (Nelson-Le Gall, 1981), it is important that it be the individual who makes the assessment of the need for help (i.e., decides that his or her own available resources are not sufficient to reach a goal or solve a given problem successfully).

Being able to determine the need for help for oneself entails knowing what or when one does not know. Success in making accurate assessments of the knowledge state appears to be a function both of age and experience (Brown, Bransford, Ferrara, & Campione, 1983). Accuracy in monitoring the correctness of responses has been shown to improve with age (e.g., Pressley, Levin, Ghatala, & Ahmad, 1987). It also appears that assessments of what is and is not known with respect to a given domain of knowledge

are more accurately made by individuals with more skill in the domain than by less skilled individuals (e.g., Chi, 1978). The more knowledge learners have, the more likely they are to recognize when seeking information can be useful. Both the quantity and the quality of requests for information can be affected by the background knowledge of the learner (e.g., Miyake & Norman, 1979) such that high skill individuals, as compared to their low skill counterparts, are more likely to request help that clarifies or confirms their existing knowledge, and thus would tend to request indirect help such as hints and explanations that allow them to apply and refine current knowledge.

The purpose of the present research was to examine the role of children's assessments of their performance on their decisions to seek help. Previous research defined the necessity of help-seeking in terms of objectively-based assessments of task performance (e.g., Cotler, Quilty, & Palmer, 1970; Nelson-Le Gall, 1987). Nelson-Le Gall (1987), however, observed that much of the help sought by third and fifth grade children was objectively unnecessary and suggested that the children might be responding instead to their subjective impressions of need for help. In order to address this issue, the present study examined self-assessment of task performance so that the necessity for help could be evaluated from the help-seeker's point of view. In the present study, the children's assessment of their performance, measured as confidence in the correctness of responses, was taken as an indicator of subjectively felt need for help. Obtaining ratings of confidence in the correctness of responses is a reliable method of ascertaining children's knowledge about what they do and do not know in a particular domain of performance (Brown, 1978).

It was predicted that if children were using help-seeking as an alternative achievement strategy, then requests for help would be strongly associated with self-assessments of performance. Specifically, it was predicted that regardless of actual objective correctness of performance, children would be less likely to seek help when they regarded their task solutions as successful than when they regarded their task solutions as unsuccessful. In addition, children's preferences for different types of help were examined. It was expected that differential confidence in correctness of one's responses would be associated with requests for different types of help. Indirect help should be requested when the help-seeker feels more confident about performance at the task and direct help should be requested when the help-seeker feels less confident.

Age and skill differences were expected in children's use help-seeking as a problem solving strategy and in requests for direct and indirect help (e.g., Nelson-Le Gall, 1987). Because older children are

relatively more experienced than younger children with academic contexts in which getting direct help such as answers from peers may be regarded as cheating, it was expected that older children would request indirect help more often than direct help when compared to younger children. Because skill level effects the ability to fill in gaps in one's knowledge by making appropriate inferences from available knowledge, it was expected that high skill children would also request indirect help more often than direct help when compared to their low skill counterparts. This hypothesized relationship between confidence ratings and type of help should be influenced by grade and skill level such that older and more highly skilled children will evidence less confidence in the correctness of their tentative responses to items for which they request help as answers than those for which they request help as hints.

Study 1

Method

Subjects

Participants in the study were 84 white third- and fifth-grade students attending a local public school serving children from a middle-class neighborhood. Children were blocked into above (more than one full year above grade level), and below (more than one full year below grade level) grade level skill groups based on the word comprehension subscore of the the current California Achievement Test in their school records. The sample, then, consisted of 42 (18 low skill, 24 high skill) third graders (mean CA=8.6 and range=7-11 to 9-1); and 42 (18 low skill, 24 high skill) fifth graders (mean CA=10.5 and range=10-0 to 10-10) with equal numbers of boys and girls in each group. Written parental consent was obtained for each child participating in the study.

Materials

Pretest words were selected from the Iowa Test of Basic Skills based upon their frequency of occurrence in readers and literature intended for the grade levels of the subjects. These items were then pretested on a separate sample of third-and fifth-grade boys and girls. Words were chosen to be of moderate difficulty. To avoid selecting a set of items that would be functionally easier for the older children than for the younger children, sixteen separate words were selected for each grade level. A different set of four alternatives was selected for each target word.

Procedure

Individual children were escorted from their classrooms by the experimenter to a quiet room in the school building. Children were seated at a table and received instructions for playing the "quiz" game. In this game the children were presented with 16 words whose meanings had to be identified by selecting from its accompanying list of alternatives that word which most closely matched the target word in meaning. Each target word and its list of four alternatives were presented on a separate slip of paper.

As part of the orientation to the game, children were told they would be allowed two chances to try to get the correct answer to each target word. The children were told that the experimenter could not help but that another child who played the game earlier and had done well had agreed to leave his/her own answers and also some hints to the answers. Because children's use of social resources was of greatest interest it was important to represent the help as coming from another person. However, to lessen any tendency on the part of the children to defer to the perceived general authority and status of an adult in the role of helper, the help source was identified as a same-sex agemate. Children were told that they were not required to ask for help but that they were allowed to do so if they felt that they needed help. The availability of help in the form of answers and in the form of hints (i.e., word used in a sentence), permitted the assessment of differential preference for direct versus indirect help.

The children were instructed to write down an initial answer to each item and make a confidence rating of the correctness of their answer on a seven-point scale with which they had familiarized themselves and then to set this slip aside. The anchor points on the scale were labeled as "very unsure - probably wrong" (1) and "very sure - I'm right" (7). The midpoint (4) was labeled as "could be right or wrong." The children's initial answer was also written down by the experimenter enabling objective assessment of the correctness of these answers. After each item, children had the options of giving the initial answer to the experimenter as the final answer, or asking for help with the item before providing a final answer to the experimenter. Because the relation of children's self-assessment of performance to help-seeking was of major interest, the experimenter withheld assessments of the child's performance until after the last item so as not to influence directly the rate or pattern of requests for help. The children were asked to record their final answer on a second answer slip and place it in an "answer box." The experimenter recorded the children's final answers along with the type of help, if any, that had been requested. Children were then debriefed, praised for their cooperation and returned to their classrooms.

Results

The goal to construct separate sets of items for each grade level that would be functionally equivalent in difficulty was met. A T-test comparing number of correct responses for each grade group indicated that overall, third graders and fifth graders responded correctly to approximately the same mean number of items (11.14 vs 11.05), $t(82) = 0.32$, $p > .10$.

Help-Seeking Requests

Response Frequencies. The frequency of different help-seeking responses were analyzed in a Grade x Sex x Skill x Help-Seeking Response analysis of variance with the last factor as a within-subjects variable. There were significant effects for the Grade x Help-Seeking Response interaction, $F(2, 152) = 9.82$, $p < .0001$; and the Skill x Response Category interaction, $F(2, 152) = 8.52$, $p < .0003$. There were no significant effects for sex as a variable. Overall, children sought help before making final responses on 63% of the items. Younger ($M = 10.7$) and less skilled ($M = 11.9$) children sought more help than did older ($M = 9.4$) and more skilled ($M = 8.7$) children.

In order to examine the hypothesized grade and skill differences in preferences for indirect versus direct help, the proportion of total help that represented requests for hints versus answers was calculated for each subject. The planned comparison to test for skill level effects on differential preference for types of help indicated a stronger preference for hints ($M = .67$) over answers ($M = .33$) among high skill children than among low skill children (hints, $M = .56$ versus answers, $M = .44$), $t(80) = 2.48$, $p < .01$. Also, as expected, there were significant grade differences in preferences for different types of help. Fifth graders displayed a stronger preference for hints over answers ($Ms = .75$ and $.25$), than did third graders who sought answers ($M = .51$) equally as often as they did hints ($M = .49$), $t(80) = 3.77$, $p < .005$.

Confidence ratings. A Grade x Sex x Skill x Help-Seeking Response analysis of variance conducted on children's confidence ratings indicated no significant variations by sex. Table 1 presents children's mean confidence ratings for eachHelp-Seeking Category pooled across sex. As predicted, different help-seeking responses were associated with differential confidence in the correctness of initial responses $F(2, 152) = 8.41$, $p < .0005$. Post hoc analyses indicated that when children did not request help ($M = 5.9$) or when they requested hints ($M = 6.1$), they were more confident that they had responded correctly than when they requested answers ($M = 4.6$). Planned comparisons indicated, as expected, that the relationship between confidence ratings and the type of help sought was influenced by both grade and skill level. As compared to the requests for help made by third graders, the requests for help made by

fifth graders were more differentiated by their confidence ratings such that requests for answers were associated with less confidence in the correctness of tentative responses to items than were requests for hints, $t(80) = 4.04$, $p<.01$. A similar pattern characterized skill differences in confidence ratings for different help requests, $t(80) = 3.93$, $p<.01$.

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insert Table 1 about here

Self Versus Objective Assessment of Need

The accuracy of self-assessments was expected to increase with age and skill level. In addition, it was predicted that self-assessments of need would be more strongly associated with help-seeking rates than objective assessments would be. In order to test these hypotheses a dichotomous variable of self-assessment was created. Confidence ratings in the correctness of the tentative response made on each trial provided the data for the measure of self-assessment of performance. Mean confidence ratings for right and wrong answers were calculated for each child and analyzed in a Grade x Sex x Skill x Item Correctness analysis of variance with the last factor as a within subject variable. The only significant effect found in this analysis was the main effect for Item Correctness. Children were more confident of the correctness of tentative solutions for items they had actually answered correctly ($M = 6.00$) than they were for items to which they had answered incorrectly ($M = 4.25$), $F(1, 76) = 63.82$, $p<.0001$. Accordingly, confidence ratings of 7,6, and 5 were taken as perceptions that a correct response had been made to the item and ratings of 1,2,3, and 4 were taken as perceptions that the response given was most likely wrong.

Scores representing the accuracy of children's self-assessments for objectively correct and objectively wrong items were derived for each subject. Scores were calculated as the proportions of actual correct responses and actual wrong responses for which the self-assessment was congruent. A Grade x Sex x Skill x Item Correctness analysis of variance$_1$ on these scores yielded significant main effects for Grade, $F(1, 73) = 4.28$, $p<.05$; and Item Correctness, $F(1, 73) = 103.39$, $p<.0001$. As predicted, the self-assessments of fifth graders ($M = .63$) matched objective performance more often than did those of third graders ($M = .57$). Also, children's self-assessments were more accurate for correct ($M = .86$) than for wrong items ($M = .35$).

The proportion of items within each self-assessment (i.e., perceived correct, perceived wrong) category and within each objective assessment (i.e., actual correct, actual wrong) for which help was sought was

calculated for each child. Proportions were used since the frequency of responses classified in any of the categories could vary across subjects. Planned comparisons using paired T-tests indicated that overall children sought help more frequently for items they perceived themselves to have answered incorrectly (M = .66) than for those they perceived themselves to have answered correctly (M = .54), t(83) = 2.18, p<.01. Also, help was sought more frequently for items to which children's responses were actually wrong (M = .80) than for items answered correctly (M = .54), t(83) = 3.99, p<.001. Contrary to predictions, self-assessment was not more strongly associated with help-seeking rates than was actual item correctness. In fact, although the variance accounted for by both variables was small, item correctness accounted for more variance in the rate of help-seeking (estimated omega square w^2 = .082) than did self-assessments (est. w^2 = .022).

The help-seeking rates were analyzed in a Grade x Sex x Skill x Self-Assessment analysis of variance in order to test for differences among the various groups of children. Grade level was found to interact with self-assessments, F(1, 76) = 10.26, p<.005. Third graders tended to seek help at approximately the same rate when they perceived their responses to be wrong (M = .60) as when they perceived their responses to be correct (M = .56). In contrast, fifth graders tended to seek help more often when they perceived their responses to be wrong (M = .76) than when they perceived their responses to be correct (M = .48). The Sex x Skill x Self-Assessment interaction was also found to be significant, F(1, 76) = 4.03, p<.05. Post hoc analyses by simple effects tests indicated that a significant Sex x Self-Assessment interaction occurred for the high skill group only: whereas girls' rates of help-seeking did not vary significantly with their self-assessments, boys tended to seek help at a higher rate for self-assessed wrong responses than for self-assessed correct responses (see Table 2).

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insert Table 2 about here

Discussion

Skill differences in the influence of self-assessments were found with respect to the type of help requested. High skill children were more confident of the correctness of their tentative solutions when requesting hints than when requesting answers as help. This observation is consistent with the findings of previous research (e.g., Brown et al., 1983), that individuals with high levels of domain-specific skill are better equipped to use their richer, and perhaps more accessible, knowledge base to determine what is

and is not known as well as what can and cannot be inferred from the knowledge that they do have. Hence, high skill children's sensitivity to the state of their knowledge could serve as a basis for determining the level of help needed. With respect to the rate of requests for help, high skill was found to be associated with the variation in help-seeking rates as a function of self-assessment, but only for boys. This latter finding suggests that for high skill girls, available internal cues were not the most prominent determinants of help-seeking behavior.

The findings of the present study indicate that grade differences exist in the degree to which children's help-seeking behaviors are related to internally based sources of performance evaluation. For fifth graders both the frequency and type of help sought varied with self-assessments of their tentative solutions. Older children sought more help when they perceived their solutions to be wrong, and were less confident in the correctness of their solutions when they sought direct help (answers) than when they sought indirect help (hints). In addition, fifth graders were more accurate in their self-assessments than were third graders. These findings suggest that the older children could and were attempting to use help-seeking in an appropriate and discriminating manner. In contrast, the third graders, especially low skill third graders appeared to seek help indiscriminately, and tended to prefer direct help to indirect help. These children in particular seemed not to rely on self-assessments of their performance when seeking help. These findings from the present study are consistent with those of researchers (e.g., Bisanz, Vesonder, & Voss, 1978) who have found postdiction accuracy to increase from first grade through the college level, yet not to be related to learning performance until the fifth grade.

It is most likely that third graders' indiscriminate use of help-seeking was not due to their greater inaccuracy in assessing their performance but instead due to different motivations for seeking help. The level of help-seeking was fairly high, especially for third graders, even in cases where the children indicated that they believed that they had given correct answers to items. In other words, children were still requesting help unnecessarily by either objective or subjective criteria. This finding suggests that a perceived lack of competence is not the sole impetus for requesting help and highlights the possibility that children in the present study varied in their motivations for seeking help. For example, the children who sought help even when they judged their task performance to be competent were not asking because they viewed the help as necessary for competent task performance; from their point of view they had already demonstrated successful performance. These children may instead have asked for help because they desired immediate, external verification of their accomplishment or of the accuracy of their

assessment. In the present study, the fact that the experimenter told the subjects that the other child had done well at the task identified for the subjects an external standard for evaluation. By looking at the answers of the "helper" child, then, the subject could receive feedback that had in a sense been screened by the adult.

It is also possible that the younger children's requests for help, which more often than those of older children were requests to see the other child's answers, were motivated by social comparison interests. Research by Veroff (1969) suggests that social comparison interests may be at their peak around this age (i.e., 7 to 9 years) and become less dominant thereafter. By presenting the "helper" child as a same-age, same-sex peer, the younger subjects may have been particularly motivated to view the helper's performance in order to gain social normative feedback about their own task performance. In sum, the task setting appears to have promoted goals of evaluating individual task performance and of obtaining comparative information about individual competence. Unfortunately, only speculations can be offered about differing motives in asking for help inasmuch as information was not obtained from subjects in the present study about their reasons for requesting help and there was no attempt to induce similar operating motivations in all subjects.

Study 2

The grade differences in Study 1 in children's discriminating use of help-seeking might be accounted for by the younger children's desire for more immediate external feedback and/or mere curiosity about the other child's answers. These motivational influences may also have been operating for the older children as well, but to a lesser degree since the older children showed some discrimination in their requests for help. Study 2 was conducted, therefore, to investigate this possibility.

Children's perception of a lack of information in their knowledge base is not, in and of itself, a sufficient predictor of help-seeking behavior in achievement settings. A lack of information must be subjectively felt as a need to acquire more knowledge that can be applied to problem solving, and this need must serve as a salient goal of help-seeking. In achievement settings, children may have a number of different goals that lead them to request help and information. In order to determine whether children's self-assessment of a lack of knowledge establishes a need for children to seek help, it is important to account for the goals of the help seeker (e.g., Ames, 1983). In the second study, an attempt was made to account for and control the goal pursued by the subjects. To this end, a response-contingent reward system was

implemented that was intended to provide a common motivation in the task setting. The reward system was designed to encourage children to limit requests for help to those instances in which they judged that they could not make a correct response to the item without help. The system also provided more immediate feedback on the accuracy of their self-assessments on an item-by-item basis. In addition, the decision was made to employ a cooperative reward structure (i.e., children's individual performance outcomes, taken together, determined a group reward) because, unlike competitive reward structures, cooperative structures tend to lessen children's focus on social comparisons of ability in achievement settings (e.g., Ames, 1984).

Method

Subjects

Twenty (10 low skill, 10 high skill) third graders and 19 (9 low skill, 10 high skill) fifth graders participated as subjects in Study 2. The mean ages of the children were 8 years, 8 months and 10 years, 7 months for third and fifth graders, respectively. Approximately equal numbers of boys and girls participated at each grade level. As in Study 1, current California Achievement Test word comprehension subscores were obtained from children's school records and used to define the skill groups. All children were white Americans and, by school administrator's report, were of lower-middle class income status. Parental consent was obtained for all children prior to the child's participation.

Materials and Procedures

The measures were identical to those of Study 1 with the following modifications. The major modification was the introduction and implementation of a response-contingent reward system. Plastic circular chips, 4 cm in diameter, were used as prize tokens that could be earned by the subjects for making correct final responses to the 16 items. Two prize tokens were earned for each correct final response made without seeking help. One prize token was awarded for each correct final response made with help. There was no differential payoff for correct responses made with help in the form of hints versus answers. No tokens were earned or forfeited for incorrect final responses.

The procedures used in Study 1 were also modified for this study. As part of their orientation to the task, children learned how to earn prize tokens. They were told that their tokens, along with those earned by their classmates, would later be exchanged for a gift for their classroom. All children readily understood the instructions and the goal of trying to accumulate as many prize tokens as possible to insure a nicer gift for their class.

Results

The mean number of items answered correctly did not differ for third and fifth graders (11.4 vs 10.7), $t(37) = 1.32$, $p>.10$. In addition, because children received feedback about the accuracy of their responses via the response-contingent reward system, the data were examined for consistent patterns of increasing or decreasing confidence ratings across trials. No such reliable patterns were found in the data.

Help Seeking Requests

Response Frequencies. A Grade x Sex x Skill x Help-Seeking Response analysis of variance yielded a significant main effect forHelp-Seeking Category, $F(2, 62) = 84.74$, $p<.0001$. Also, there were significant Skill x Help-Seeking Response, $F(2, 62) = 4.93$, $p<.01$; and Sex x Skill x Help-Seeking Response, $F(2, 62) = 3.17$, $p<.05$, interactions. Overall, children sought help on 32% of the items. Simple effects tests on the three way interaction indicated that the Skill x Help-Seeking Response interaction was significant only for boys. High skill boys tended to respond without seeking help on more items than did low skill boys, and also sought less answers than low skill boys when they did see help.

The proportion of total help that represented requests for hints versus answers was calculated for each subject. With the exception of low skill third graders, children requested help more often as hints than as answers. Results of the planned comparisons on these proportions indicated, however, that fifth graders preferred hints ($M = .78$) to answers ($M = .22$) to a greater extent than did third graders (hints $M = .67$, answers $M = .33$), $t(35) = 3.18$, $p<.005$. Similarly, low skill children did not show as as strong a preference for hints ($M = .60$) versus answers ($M = .40$) as did the high skill group, (hints $M = .85$, answers $M = .15$), $t(35) = 3.18$, $p<.005$.

Confidence Ratings. A Grade x Sex x Skill x Help-Seeking Response analysis of variance was conducted on children's confidence ratings. This analysis yielded a significant main effect for Help-Seeking Category, $F(2, 62) = 58.25$, $p<.0001$; and Skill x Help-Seeking Response interaction, $F(2, 62) = 5.30$, $p<.01$. Post hoc comparisons performed on the mean confidence rating associated with each type of help-seeking response indicated that when children made no requests for help they were more confident that their response was correct ($M = 6.12$) than when they requested help in the form of hints ($M = 3.56$) or in the form of answers ($M = 2.08$). Furthermore, children's confidence ratings were significantly higher when hints were sought than when answers were sought. Simple effects tests of the Skill x Help-Seeking Response interaction indicated that at both skill levels children's confidence ratings varied

significantly for different task responses.

The hypothesized influence of grade and skill level on the relationship between confidence ratings and type of help requested was tested in planned comparisons. Results of these comparisons indicated that there was differentiation in low skill children's mean confidence ratings only between not requesting help (5.89) and requesting either hints (3.08) and answers (2.79), but no differentiation among the forms of help sought. In contrast, high skill children's mean ratings indicated that they were more certain of the correctness of their tentative responses when they sought no help (6.35) than when they sought hints (4.02) and also more certain of being correct when they sought hints than when they sought answers (1.41). No grade differences were found. The help requests of third and fifth graders were equally differentiated by confidence ratings such that children at both grade levels were most confident in the correctness of their responses when they sought no help and least confident when they sought answers as help.

Self versus Objective Assessment of Need

Confidence ratings were used to classify children's responses as self-assessed correct and self-assessed wrong according to the procedures described in Study 1. Children's mean confidence ratings for correct items (5.84) was significantly higher than that for incorrect items (4.41), $F(1, 31) = 32.93$, $p<.0001$.

The Grade x Sex x Skill x Item Correctness analysis of variance$_2$ conducted on children's accuracy scores yielded a significant main effect for Item Correctness, $F(1, 29) = 22.47$, $p<.0001$. Children's self-assessments were more accurate for correct ($M = .78$) than for wrong items ($M = .45$). This finding, however, was qualified by the significant Skill x Item Correctness interaction, $F(1, 29) = 4.48$, $p<.05$. Simple effects tests of the Skill x Item Correctness interaction indicated that the self-assessments of high skill children were more accurate ($M = .86$) than were those of low skill children ($M = .70$) for correct items. Mean scores did not differ significantly for wrong items (high = .42, low = .49). The Grade x Sex interaction was also found to be significant, $F(1,29) = 8.37$, $p<.01$. Simple effects tests on the mean accuracy scores for this effect indicated that whereas third grade boys and girls did not differ significantly in the accuracy of their self-assessments (third grade boys = .64, third grade girls = .58), fifth grade boys were significantly less accurate (.54) than were fifth grade girls (.71). In addition, although it was predicted that accuracy of self-assessments would increase with age, the predicted difference was obtained only for girls.

Planned comparisons using paired t-tests on the mean rates of help-seeking for self-assessed correct and wrong responses indicated that help was requested more often when the children perceived their tentative responses to be incorrect (.76) than when they perceived their responses to be correct (.15), $t(38) = 11.74$, $p<.0001$. In addition, although help was sought more often when response to items were objectively wrong (.54) than when objectively correct (.22), $t(38) = 5.73$, $p < .0001$; objective item correctness did not account for as much of the variance in help-seeking rates ($w^2 = .290$) as did self-assessment of performance ($w^2 = .637$).

A Grade x Sex x Skill x Self-Assessment analysis of variance conducted on help-seeking rates yielded significant four-way interaction, $F(1, 31) = 7.66$, $p<.01$. Simple effects tests of this interaction indicated that there were no significant differences in mean help-seeking rates observed for self-assessed correct responses or for the low skill children. For the high skill children, however, there were significant differences by grade and sex in the rates of help seeking associated with self-assessed wrong responses. Third grade girls sought help at a much lower rate than did their male counterparts and fifth grade girls for responses that they perceived to be wrong (see Table 3).

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insert Table 3 about here

Discussion

The overall frequency of help seeking was less in this study as compared to that in Study 1. This decrease appears to be accounted for primarily by the lower levels of objectively unnecessary help seeking in the present study. The difference in the overall frequencies of help seeking in Studies 1 and 2 suggests that requests for help were being coordinated to the different goals that were made salient in each task setting.

In the present study the predicted relationship between self-assessment of performance and help-seeking rates was supported. Help-seeking rates depended more on children's self-determined need for help than upon the actual correctness of their responses. Children tended not to request help when they judged their responses to be correct; however, when children perceived their responses to be incorrect they sought help more often than not. In the present experiment, the use of a response-contingent reward system encouraged children to be more discriminating in their help-seeking behavior and also required children to evaluate the correctness of their tentative solutions in order to establish a need for

help. The use of strategies that focus the child on internal assessments of performance may increase the likelihood that the individual will become aware of the need for assistance. This interpretation is consonant with the findings of other researchers (e.g., Karabenick, 1987) who have found that the use of cognitive learning strategies such as planning, monitoring, and allocation of attention are positively associated with help seeking in response to perceived need.

The finding that boys seek help less often than girls do is well documented (see McMullen & Gross, 1983 for a comprehensive review). Likewise, the finding of a grade x sex interaction in the accuracy of self-assessments is consistent with the reports of previous research (e.g., Pressley, Levin, Ghatala, & Ahmad, 1987). Given the small sample size in the present study, however, interpretations of the observed sex differences in the relationship between help-seeking rates and self-assessment should be reserved. Additional studies collecting similar data with larger samples are clearly warranted.

Skill differences in help-seeking behavior were similar to those in Study 1. The replication of the findings with respect to skill level can be taken as clear evidence of the influence of background knowledge on the discriminating use of help seeking as an achievement strategy. In contrast, the majority of the grade differences found in Study 1 were not present in this study. The grade related-differences that occurred only in the first study are most parsimoniously attributed to differences in the preference for internal versus external evaluations of performance. It appears to be the case that younger children required immediate, external feedback in order to limit their help-seeking requests to those instances in which they judged their tentative solutions to be incorrect. The only grade difference replicated was the existence of a stronger preference for indirect help among fifth graders than among third graders. This grade difference most likely reflects the older children's greater experience with the sanctions against "copying answers" that exist in most American school-like achievement settings as much as, if not more than, it reflects age-related differences in strictly cognitive influences on help seeking.

General Discussion

The present research examined the role of self-assessment of performance on children's use of help-seeking as an achievement strategy. In general, the results support the notion that self-assessed need is an important determinant of help-seeking behavior in problem-solving settings. Self-assessments of need were found to influence both the degree and the type of help sought. However, the two studies taken

together, provide evidence that the relationship between self-assessment and children's adaptive use of help-seeking in achievement settings is influenced by an interplay of the child's task specific skill, age, and characteristics of the task environment.

High task specific knowledge appears to allow the help-seeker to fine-tune requests for help to the level of subjectively felt need. Low skill children may meet with more difficulty in retrieving the desired information from memory, or in making inferences with confidence from available information and thus, would find direct help more beneficial. Nevertheless, both groups of children may be regarded as using help-seeking in an appropriate and instrumental way that is reflective of their current levels of personal resources for coping with the perceived need. In the long run, however, if low skill children develop a tendency to ask for more help than is needed to make use of their available knowledge there could be negative effects of their help-seeking on the development of independent mastery and learning. Although background knowledge level (i.e., domain specific skill) may influence the type of information requested, it does not appear to be as strongly predictive of the rate of help-seeking under varying conditions of perceived need. Whether or not perception of need serves as an impetus for seeking help appears to be mediated by the age and sex of the child, and by features of the task situation that may impose motivational enhancements and constraints on this behavior.

The results pertaining to grade effects have several implications. The first implication is that young children do, under certain situations, rely on internally generated assessments of task performance to determine the need for help seeking. The second implication, however, is that use of this strategy (i.e., making self-assessments of one's problem-solving as a means of determining need before requesting help) may be more precarious in young children. In addition to being objectively less accurate in their self-assessments than older children, third graders are also at a period in their development where they are beginning to revise their notions about ability, success, and failure in achievement settings (e.g., Dweck & Elliott, 1983). Such concerns may make these children more sensitive to opportunities for social comparison and to external, evaluative cues. The third graders may not shield their application and monitoring of cognitive strategies from these motivational and situational distractions (see Pressley, Borkowski, & Schneider, 1987 for a more detailed discussion of the role of general strategic tendencies such as action control in the execution of cognitive strategies during task performance). Hence, rather than a fundamental lack of ability to attend to and apply knowledge about task performance derived from internal cues, younger children may be less flexible in their ability to do so under conditions that foster

competing motivations and goals.

The findings of the present research suggest that among the younger children, the help-seeking behavior of girls with high levels of task-related skill may not be consistently sensitive to internally generated cues about performance. On the one hand, it was found that these girls can and do use internally based evaluations of their task performance in determining the type of help to seek. On the other hand, however, third grade high skill girls sought help less often when they thought they might be wrong than did their male counterparts. This finding is particularly interesting given that the self-assessments made by these groups did not differ in accuracy. Interpretations of these sex differences in reliance on internal sources of performance feedback and use of various problem-solving strategies may be drawn from the literature on sex role stereotyping and achievement socialization. The socialization practices to which girls are exposed may make them less inclined to rely on their own appraisals and to be more concerned with feedback from adult evaluators who often encourage girls to be passive and less oriented to task mastery in achievement situations (e.g., Block, 1984; Dweck & Elliott, 1983). It is also important to note that children's generalized perceptions of their competence, and not merely their objective task-specific skill level, may play a pivotal role in determining the relationship between self-assessments and help-seeking. With few exceptions (e.g., Nelson- Le Gall, DeCooke, & Jones, in press), however, perceived competence and objective skill level have not been measured and examined together in studies of children's help seeking. Further study of the help-seeking behaviors of high skill girls and seem warranted given their potential risk for the acquisition of maladaptive achievement beliefs and behaviors (c.f. Dweck, Davidson, Nelson, & Enna, 1978; Parsons, 1983; Phillips, 1984).

In conclusion, the present research illustrates the importance of examining self-assessment of need in understanding task-related help seeking. Taken together, the findings of this research highlight the need for research that systematically investigates motivational as well as cognitive influences on the adaptive and instrumental use of help seeking in problem-solving and learning situations. The present research demonstrates the importance of accounting for situationally-based motivational influences on help-seeking. Further research will be needed to explore systematically the effects of the help-seeker's goal in obtaining information and the help-seeker's existing knowledge on the rate and type of help-seeking that occurs in problem-solving contexts. It will also be important in future research to identify children's own criteria for judging help as necessary, and to examine potential age and sex differences in these criteria. Children may pursue a variety of goals in achievement settings and help-seeking may serve as a means

of pursuing these goals. Achievement goals may be imposed upon the child by the task or some aspect of the task environment, but they may also be defined by the child undertaking the task (C. Ames, 1984; R. Ames, 1983; Nelson-Le Gall, 1981; Nelson-Le Gall & Jones, 1989). Moreover, there may be individual differences among children in the tendency to pursue different achievement goals. Such differences may also be important in predicting which children will view task-related help seeking as relevant under various task performance conditions.

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Author Notes

This research was supported in part by grants to Sharon Nelson-Le Gall from the Young Scholars in Social and Affective Development Program of the Foundation for Child Development and from the National Science Foundation(R11-8613889).

An earlier version of this report was presented at the biennial meeting of the Society for Research in Child Development, Kansas City, MO, April, 1989.

The authors gratefully acknowledge the interest and cooperation of the students and staff of participating elementary schools.

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Footnotes

1. Three high skill third graders (1 boy, 2 girls) did not make any wrong tentative responses and thus their data were not included in this analysis.

2. One third grade low skill girl and one fifth grade high skill boy did not make any wrong tentative responses and thus their data were not included in the analysis.

Table 1

Confidence Ratings by Grade, Skill Level, and Help-Seeking Response in Study 1

	Grade 3		Grade 5	
	Low	High	Low	High
Response	skill	skill	skill	skill
Hint				
M	5.96	6.08	6.03	6.20
SD	1.68	1.98	0.92	0.79
Answer				
M	5.42	4.99	4.38	3.82
SD	2.56	2.98	2.61	2.91
No Help				
M	4.44	6.27	6.01	6.40
SD	3.27	1.98	2.26	1.44

Note. Scores range from 1 - "very unsure, probably wrong" to 7 - "very sure I'm right."

Table 2

Mean Help-Seeking Rate as a Function of Sex, Skill Level, and Self-Assessment in Study 1

	Low Skill		High Skill	
Self-Assessment	**Boys**	**Girls**	**Boys**	**Girls**
Correct				
M	0.66	0.70	0.36	0.51
SD	0.25	0.29	0.26	0.33
Wrong				
M	0.76	0.83	0.67	0.44
SD	0.42	0.34	0.46	0.50

Table 3

Mean Help-Seeking Rates in Study 2

	Self-Assessed Correct			
	Grade 3		Grade 5	
Sex	Low skill	High skill	Low skill	High skill
Boy				
M	0.28	0.04	0.19	0.10
SD	0.29	0.06	0.22	0.03
Girl				
M	0.11	0.14	0.16	0.16
SD	0.09	0.21	0.07	0.17
	Self-Assessed Wrong			
Boy				
M	0.90	0.82	0.77	0.50
SD	0.17	0.29	0.19	0.58
Girl				
M	0.91	0.39	0.74	0.92
SD	0.20	0.38	0.16	0.12